therewith, a lubricant containing a polyol ester prepared by the process comprising:

(a) mixing 3-hydroxy-2,2-dimethyl-propyl-3-hydroxy-2,2-dimethyl-propionate (HPHP) and

- trimethylol propane, trimethylol ethane, pentaerythritol or 2,2,4-trimethylpentadiol, the amount of the 3-hydroxy-2,2-dimethyl-propyl-3-hydroxy-2,2-dimethylpropionate being at least 50 mol-% of the polyol residue of the ester mixture, and

(b) esterifying said mixture *in situ*. with 1 or more COOH

REMARKS

In the Advisory Action dated March 28, 2002, the Examiner stated that the last response did not place the application in condition for allowance and maintained the previous obviousness and indefiniteness rejections.

Rejections Under 35 USC §112, second paragraph

The Examiner had objected to the use of the phrase "in situ" in claim 17 for reasons of record. Specifically, the Examiner stated that "if applicant wishes a claim to state that the polyols are first mixed and then esterified, and that the two

steps take place in the same vessel, or that the two steps take place *in situ*, that that information has been put into the claim." Applicant has amended claim 17 in accordance with the Examiner's suggestion. Applicant believes that the foregoing claim amendment complies with the standards of 35 USC §112, second paragraph and respectfully request reconsideration and removal of the rejection.

Rejections Under 35 U.S.C. §103(a)

Claims 17 and 19-26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nakahara et al. The Examiner argues that Nakahara et al. discloses compositions comprising lubricating oils synthesized from esters combined with various polyols and linear and branched mono- and di-carboxylic acid, said oils mixed with fluorocarbon refrigerants. In response to Applicant's previous argument, the Examiner states that, like Nakahara, the present invention discloses a two-step process. As such, the Examiner has maintained the obviousness rejection.

Applicant maintains that the present invention is novel and unobviousness in view of Nakahara. The HPHP (CAS-1115-20-4) used as a starting compound in the present invention is a commercial produce supplied by Eastman (US) and BASF and Krahn

(Germany). There are different ways of preparing HPHP and the most common, and also the most commercial one, are to prepare it directly from isobutyraldehyde using the "Tischenko" reaction. It is much easier to use a commercially available product than to prepare one by use of a separate reaction. Accordingly, the use of HPHP is, naturally, much simpler than the preparation thereof from the corresponding aldehyde as described by Nakahara in Example 1 particularly because one can exclude conducting the reaction and the post-treatment and purification steps. Applicant submits that the preparation of HPHP from HP acid and neopentyl glycol (NPG) will not give rise to a compound which would be of the same or similar quality of the commercially available HPHP used in the present invention.

Reacting HP acid and NPG always forms some longer chains as disclosed in Example 4 of Nakahara. The Nakahara reference discloses esterification of hydroxyisobutyric acid with neopentyl glycol as a first step. This leads to a structure that has more NPG units than in the present invention (where pure HPHP is used as a starting material). As a result, a product of different structure is reached. As previously stated, the solubility of polyol esters in refrigerants is not easily predictable. According to the present invention, the concentration of HPHP in mixed esters should be sufficiently

large, and the lower limit is determined by the second polyol used (cf. The examples in Table 4 of the application). As seen in Table 4, samples 7 and 9 are identical with the exception of the polyol. The results in Table 4 indicate that the solubility increases when the amount of the HPHP increases. These results are not disclosed or suggested by Nakahara. Applicant, therefore, submits that the present invention is unobvious in view of Nakahara.

Accordingly, in view of the above amendments and remarks, reconsideration of the rejections and allowance of the claims of the present application are respectfully requested.

In the event there are any additional matters remaining in this application, the Examiner is strongly encouraged to contact the undersigned at (714) 708-8555 in order to discuss these matters.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), the Applicant respectfully petitions for a three (3) month extension of time for filing a response in connection with the present application and the required fee of $1440.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and further replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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LRS/KR/clh

Attachment: Version with Markings to Show Changes Made

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope to: Commissioner of Patents and Trademarks, Washington D.C. 20231 on: 8-26-02
(Date of deposit)

BIRCH, STEWART, KOLASCH & BIRCH, LLP

(Signature)

Aug 26, 2002
(Date of Signature)

RESPONSE WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Claims 1-9, 16 and 18 have been canceled.

The claims have been amended as follows:

17. (Amended) Refrigerant composition comprising a chlorine-free hydroflurocarbon based refrigerant and, mixed therewith, a lubricant containing a polyol ester[, wherein said polyol ester is prepared *in situ* and comprises] prepared by the process comprising: [a mixture of] (a) mixing 3-hydroxy-2,2-dimethyl-propyl-3-hydroxy-2,2-dimethyl-propionate (HPHP) and

- [an ester] of trimethylol propane, trimethylol ethane, pentaerythritol or 2,2,4-trimethylpentadiol, the amount of the 3-hydroxy-2,2-dimethyl-propyl-3-hydroxy-2,2-dimethylpropionate being at least 50 mol-% of the polyol residue of the ester mixture, [or]
- [an ester of 2-butyl-2-ethyl-1,3-propanediol, the molar ratio of the 2-butyl-2-ethyl-1,3-propanediol ester and the 3-hydroxy-2,2-dimethyl-propyl-3-hydroxy-2,2-dimethylpropionate being 5:95 - 99:1.] and

(b) esterifying said mixture *in situ*.